

Prevalence of Co-infection with Hepatitis C among tuberculosis patients presenting at Gulab Devi Hospital, Lahore

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ABSTRACT

Aim: To determine the prevalence of co-infection with hepatitis C among patients of tuberculosis presenting at Gulab Devi Hospital, Lahore.

Methods: We carried out a cross-sectional study at Gulab Devi Hospital, Lahore from 1st January 2018 to 30th June, 2019 which included 400 consecutive cases of TB. Informed consent was taken from all participants. Proforma was used to record demographic data. Collected samples were tested for anti HCV at Department of Pathology, Gulab Devi Hospital, Lahore. Results were analyzed using SPSS ver 22.

Results: A total of 400 cases of diagnosed tuberculosis were included in the study. Mean age of the patients was 34.58 +/-17.19 years. 214 (53.5%) of the patients were male while 186 (46.5%) of the patient were female. Of the 400 patients, 31(7.75%) had co infection with Hepatitis C. When stratification of variables was done it was found that education was the only significant factor. (p = 0.0213)

Conclusion: Hepatitis C co-infection is common in patients of tuberculosis. Patients should be offered screening to help detect and treat the conditions timely.

Keywords: Co-infection, Hepatitis C, Tuberculosis

INTRODUCTION

Tuberculosis is a sinister disease with a chronic, slow and often painful outcome. It may involve any system of the body but most commonly involves the respiratory and gastrointestinal system. With improved living conditions and better healthcare systems the incidence in developed countries has decreased considerably, however, it remains quiet rampant in underdeveloped countries.

As per estimation of the World Health Organization, there were 10.4 million new TB cases worldwide and 1.67 million TB deaths. The highest incidence (45%) was in South-East Asia, followed by, Africa (25%), Western Pacific Region (17%), Eastern Mediterranean Region (7%) and Europe and the Americas (3%)¹According to the WHO Pakistan, with an estimated 510 000 new TB cases emerging each year and approximately 15 000 developing drug resistant TB cases every year, is ranked fifth among B high-burden countries worldwide and it accounts for 61% of the TB burden in the WHO Eastern Mediterranean Region².

According to data available with National TB Control Program, Pakistan the number of new TB cases during 2017 was more than 344,000³.

Hepatitis C is a well-known agent of liver diseases, including chronic hepatitis, cirrhosis and hepatocellular carcinoma^{4,5}. The global infection rate due to hepatitis C is estimated to be 71 million with approximately 399000 death occurring in 2016 due to the disease. ⁶Sadly hepatitis is widespread in Pakistan. There are almost 12 million cases of hepatitis in Pakistan with 150 000 new cases being diagnosed each year⁷.

One of the major, clinically relevant side effects in the treatment of TB is hepatotoxicity, which disrupts the treatment process and may lead to discontinuation of the patient's treatment. Infection with HCV increases the

hepatotoxicity of anti-TB drugs, and patients with TB should be tested before they start treatment⁸. Globally, the prevalence of hepatitis C among patients with TB has not been extensively investigated, and very limited data on rates of HCV co-infection among patients with TB exists⁹.

In one of the first meta-analysis to comprehensively address the prevalence of HCV in TB patients worldwide, review of data of 15,542 patients with TB showed overall prevalence of HCV infection in patients with TB was 7%¹⁰. We could find very limited data when we searched local literature. Therefore we decided to conduct a cross sectional study to evaluate the prevalence of co-infection of hepatitis C in patients presenting to us with Tuberculosis at the OPD department of Gulab Devi Hospital, Lahore.

METHODS

This cross sectional study was carried out at Gulab Devi Hospital, Lahore from 1st January 2018 to 30th June, 2019. 400 consecutive cases of TB were included in the study. Consent was taken from all patients for inclusion in the study and drawing of specimen. Demographic data of all patients were recorded on proforma. Collected samples were tested for anti HCV at Department of Pathology, Gulab Devi Hospital, Lahore. Results were analyzed using SPSS ver 22.

RESULTS

A total of 400 cases of diagnosed tuberculosis were included in the study. Mean age of the patients was 34.58 +/-17.19 years. 214 (53.5%) of the patients were male while 186 (46.5%) of the patient were female. Majority of the patients were uneducated. (40.8%). Of the 400 patients, 31(7.75%) had co infection with Hepatitis C. When stratification of variables was done it was found that education was the only significant factor. (p = 0.0213)

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Fig. 1: Co-infection of hepatitis c in diagnosed cases of TB

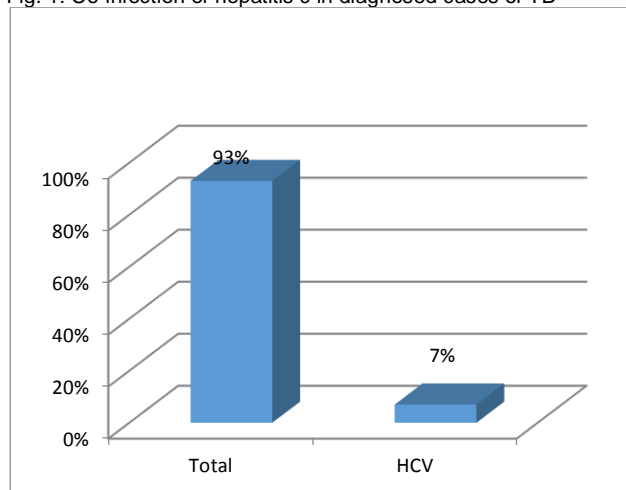


Table 1: Stratification by variables

Variable	HCV		P value
	Yes	No	
Gender			
Male	19	195	0.454
Female	12	174	
Marital status			
Married	24	228	0.1199
Unmarried	7	141	
Education status			
Educated	19	144	0.0213
Uneducated	12	225	
Age			
Under 60 years	28	338	0.7382
More than 60 years	3	31	

DISCUSSION

On the basis of the data of our study, we concluded that the prevalence of co-infection with Hepatitis C in patients of TB is 7.75%. The prevalence of co-infection varies in different studies. It has been documented to vary from 6.7% to as high as 31%^{11,12}. In a meta-analysis carried out recently the prevalence of co infection was determined to be 7%¹⁰.

The mean age of our patients was 34.58 +/-17.19 years. This is of concern as most of these patients are of lower middle and lower socio-economic status and the resultant loss of quality of life as well as expenditure will be significant. Furthermore the ability of these individuals to function successfully and be active members of their household and society will be compromised.

When gender was taken into consideration, our results showed that there was no significant difference in the rates of co-infection between men and women. However other researchers have found a significant difference in this regard with men being more likely to be co-infected. A number of studies have contributed this to the more high risk behavior of men as compared to woman. Although the exact significance of this is not known^{13,14}.

Our study found no significant difference between co-infection rate among married or un-married patients. However it does lead to an important social issue and future infective chance where upon marriage there is risk of transmission of both diseases to their partner. Some

studies however concluded that the prevalence was higher in married patients although screening of partners was not done¹⁵. Perhaps not unsurprisingly the only factor which was significantly associated with a difference was the education level. The prevalence of co-infection was higher in illiterate as compared to educated patients.

Our study does have a number of limitations. It was a single center study with limited number of patients. We didn't carry a detailed investigation into the causes of the disease or outcome of the condition. A more powered multicenter study is required to answer these questions.

CONCLUSION

On the basis of our study we can conclude that hepatitis C is prevalent among patients of TB presenting to our OPD. Since the patients affected by this condition are of middle age, it seems pertinent to offer screening to all patients of tuberculosis so that the condition may be identified at an earlier stage. In addition it may also help the physician to modify the treatment in light of additional risk of hepatotoxicity in such patients. Education level of the populace and education regarding the diseases may help to reduce the disease burden.

REFERENCES

1. World Health Organization. Global tuberculosis report 2017. Available from URL: http://who.int/tb/publications/global_report/en/.
2. Available from URL: <http://www.emro.who.int/pak/programmes/stop-tuberculosis.html>
3. National TB Data. Available from URL: https://www.ntp.gov.pk/national_data.php
4. A. Maheshwari, S. Ray, P.J. Thuluvath, Acute hepatitis C, *Lancet* 372 (2008) 321–332.
5. M.G. Ghany, Diagnosis, management, and treatment of hepatitis C: an update, *Hepatology* 49 (2009) 1335–1374.
6. Available from URL : <https://www.who.int/news-room/fact-sheets/detail/hepatitis-c>
7. <http://www.emro.who.int/pak/programmes/prevention-a-control-of-hepatitis.html>
8. Mohammed A. Agha, Ibraheim I. El-Mahalawy, Hosam M. Seleem, Mohamed A. Helwa. Prevalence of hepatitis C virus in patients with tuberculosis and its impact in the incidence of anti-tuberculosis drugs induced hepatotoxicity. *Egyptian Journal of Chest Diseases and Tuberculosis*. Volume 64, Issue 1, 2015, 91-96.
9. Lorent N, Sebatunzi O, Mukeshimana G, Van den Ende J, Clerinx J (2011) Incidence and Risk Factors of Serious Adverse Events during Antituberculous Treatment in Rwanda: A Prospective Cohort Study. *PLoS ONE* 6(5): e19566. <https://doi.org/10.1371/journal.pone.0019566>
10. Behzadifar M, Heydarvand S, Behzadifar M, Bragazzi NL. Prevalence of Hepatitis C Virus in Tuberculosis Patients: A Systematic Review and Meta-Analysis. *Ethiop J Health Sci.* 2019;29(1):945–956. doi:10.4314/ejhs.v29i1.17
11. Wang J.Y., Liu C.H., Hu F.C., Chang H.C., Liu J.L., Chen J.M. et al. Risk factors of hepatitis during anti-tuberculous treatment and implications of hepatitis virus load. *J Infect.*, 2011; 62 (6): 448-55.
12. Sirinak C., Kittikraisak W., Pinjeesekikul D., Charusuntornsri P., Luanloed P., Srisuwanvilai L. et al. Viral hepatitis and HIV – associated tuberculosis: Risk factors and TB treatment outcomes in Thailand. *BMC Public Health* 2008; 8: 245.
13. Olmedo DB, Precioso PM, Lugdero-Correia A, da Silva G, dos Santos AMG, Pôrto LC. Exposure source prevalence is associated with gender in hepatitis C virus patients from Rio de Janeiro, Brazil. *Mem Inst Oswaldo Cruz.* 2017; 112(9):632.
14. Tolmane I, Rozentale B, Keiss J, Arsa F, Brigis G, Zvaigzne A. The prevalence of viral hepatitis C in Latvia: a population-based study. *Medicina (Kaunas).* 2011; 47(10):532–35.
15. Haq M , Arshad AS , Hakim A , Mehmood I , Ali S , Rasheed S. High prevalence of hepatitis B & C in TB patients – will it be the next threat to tuberculosis control? *JSZMC; Apr – Jun, 2013, Vol 04 No. 02:427-31.*